

20000-30000

CLAIMS

1. An infrared data communication module comprising:

5 a substrate having a surface for mounting a group of components which includes a light emitting element, a light receiving element and an IC element; and a molded body formed of a molding resin to entirely cover said surface of the substrate for sealing the group of components; said surface of the substrate being formed with at least one jumper pad formed  
10 by plating a conductive film with gold;

the jumper pad being partially or entirely spaced from an edge of the substrate.

2. The infrared data communication module according to claim

15 1, further comprising a shield case formed of a metal for partially covering outer surfaces of the module.

3. The infrared data communication module according to claim

2, wherein the shield case includes a surface for contacting

20 the molded body, the surface being provided with either one or both of a riser portion which inwardly slants toward the molded body and a fitting portion for fitting into a recess formed on a surface of the molded body.

25 4. An infrared data communication module comprising a substrate having a surface provided with a die bonding pad formed by plating a conductive film with gold, and a light emitting

element mounted on the die bonding pad,

the die bonding pad being generally circular as viewed in plan and having an area larger than a bottom surface area of the light emitting element.

5

5. An infrared data communication module comprising: a substrate having a surface for mounting a light emitting element, a light receiving element and an IC element; a protective member for covering each of the elements; and a 10 molded body formed of a molding resin on said surface of the substrate to cover the protective member;

said surface of the substrate being formed with a recess for enhancing bond between the substrate and the molded body.

15 6. The infrared data communication module according to claim  
5, wherein the recess is formed on said surface of the substrate  
at each of plural portions which avoid the protective member.

7. The infrared data communication module according to claim  
20 5 or 6, wherein the recess is generally cylindrical.

8. A method of making infrared data communication modules each of which comprises a substrate having a surface for mounting a group of components which includes a light emitting element, 25 a light receiving element and an IC element, and a molded body formed of a molding resin to entirely cover said surface of the substrate for sealing the group of components, said surface

of the substrate being formed with at least one jumper pad formed by plating a conductive film with gold, the method comprising the steps of:

5 forming a conductive film on an entire surface of a material board including substrate areas which later provide substrates;

etching the conductive film to form a plating conductive pattern which later provides jumper pads;

10 applying a gold foil on the plating conductive pattern by electroplating at jumper pad regions which correspond to the jumper pads;

removing a connecting portion of the plating conductive pattern extending from an edge of each substrate area to outside of the substrate area;

15 mounting groups of elements;

shaping a molding resin into molded bodies on the material board; and

dividing the material board along each of the substrate areas.

20

9. A method of making an infrared data communication module which comprises a substrate having a surface for mounting a group of components including a light emitting element, a light receiving element and an IC element, and a molded body formed 25 of a molding resin to seal the group of components, the method comprising the steps of:

forming a recess on said surface of the substrate for

enhancing bond between the substrate and the molded body before  
the group of components is mounted on the substrate; and  
forming the molded body so that the molding resin is trapped  
and hardened in the recess after the group of components is  
5 mounted on the substrate.